



# DETERMINANTS OF HOUSEHOLD EXPENDITURE ON HIGHER EDUCATION IN INDIA

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## ABSTRACT

Drawing on 64<sup>th</sup> round National Sample Survey unit level data – this study attempts to examine the key determinants of household expenditure on higher education in India. Based on Ordinary least square model (OLS) the study finds that due to huge economic burden of expenditure on higher education a typical household chooses to spend less on the girl child. It further reveals the parental education and household income play pivotal role in determining households' educational expenditure along with individual's caste group – specifically, households belonging to backward caste groups spend less than general category households. Therefore, the study provides a rationale for cost sharing between the state and households for inclusive higher education.

**KEYWORDS:** Household expenditure, Higher Education, Caste, Gender, Location.

## 1. INTRODUCTION

Higher education expenditure in the Indian context has generally been investigated at the level of macro economy – in particular the extent and effect of public expenditure in higher education has been explored in great detail. While, it is essential to understand and investigate the role of public expenditure in education, the investment made on the part of household is no less crucial. However, due to data constraint and general perception that larger share of educational expenditure is borne by government and household expenditure is miniscule, the researchers did not provide ample attention in scrutinizing the role played by households. This has changed recently with three important studies by Tilak, 2002; Kambhampati, 2008 and Duraisamy and Duraisamy, 2016). It is clear from these studies that, household expenditure is sizable in case of higher education; nonetheless the amount varies across groups. Several studies investigating the determinants of household expenditure on education, found that caste, gender, economic condition, parental education, location of residence etc. plays pivotal role in determining the amount of household expenditure (Filmer and Pritchett 1998; Tilak 2002; Duraisamy and Duraisamy, 2016).

Therefore, the present article attempts to explore the key determinants of household expenditure on higher education in India. The article is structured as follows. The next section provides the database used for the analysis along with the econometric specification of the model of estimation. Results are discussed in section 3. Finally, section 4 concludes with some major findings.

## 2. DATA AND METHODOLOGY

The analysis of the present article is based on the 64<sup>th</sup> round NSS unit level records on 'Participation and Expenditure in Education' conducted in the year 2007-08. Altogether a sample of 445960 persons, 63318 from rural households and 37263 from urban households spread over the country, was surveyed in this round. However, the determinants of expenditure on higher education is calculated from the information gathered from those pupils who were pursuing higher education during the survey period (2007-08) and belonging to the age group 18-23 years. In all, a sample of 4511 individuals fulfilled these criteria.

### Econometric Specification

The determinants of household expenditure in higher education are studied by employing the ordinary least square (OLS) regression model. Although, some studies suggest to use truncated model/Tobit Model for this kind of analysis as OLS model can produce biased and inconsistent estimates [because, if some of the households incur zero expenditure, then ignoring those values (as OLS estimation does) would produce biased estimates]. However, OLS estimation procedure is adopted in present case, as none of the households in our data-set incurred zero expenditure on higher education – thus OLS estimates are not biased this case. Further, it is also argued results of OLS and Tobit models are often similar (Wooldridge 2002, p. 541)

The OLS regression equation estimated can be expressed as follows:

$$\ln HHE_{\text{ExpHE}} = \alpha + \beta_1 X_1 + \mu \dots \dots \dots (1)$$

where,

$\ln HHE_{\text{Exp}}$  = logarithm of annual household expenditure on higher education

$\alpha$  is intercept term which is interpreted as the average value of the dependent variable when all the explanatory variables are set to zero.

$\beta_i$  (i ranges from 1...n) are the regression coefficients to be estimated that measures the influence of independent variables on household expenditure on higher education.

$X_i$  (i ranges from 1...n) is the vector of explanatory variables (namely – gender, caste, parental education, household size, household income (captures by monthly per capita consumption expenditure [MPCE], landholding, type of institution, type of higher education – described in details in the following section) and  $\mu$  is error term.

## 3. RESULTS

This section presents the empirical estimates obtained from the OLS regression models. The dependent variable is taken as the log linear value of annual household expenditure on higher education

Table 1 reports the estimates of OLS regression for all India level and separately for rural and urban region. The regression results reveal that economic condition of households remains a strong determinant of household expenditure on higher education in India. The coefficient shows an unit increase in household income (proxied by  $\ln MPCE$ ) increases expenditure on higher education by 0.55 units. Generally, gender is believed to be a one of the most crucial determinants of household expenditure on education, especially when it comes to higher education. Along expected lines, data shows statistically significant negative beta coefficient for gender. Thus, at all India level households spend 9.5 per cent lower on higher education of female students.

Variation in household expenditure on higher education is also prevalent across different castes. With respect to others (i.e. non-SC/ST/OBC) households belonging to SC category make 15.6 per cent lower allocations, followed by OBCs (8.7 per cent) and STs (6.3 per cent).

In line with the findings of other studies the present study also finds positive impact of parental education on household expenditure in higher education. Normally, educated parents can perceive the economic and non-economic benefits of higher education and place higher value on it. As a result, higher the educational qualification of parents, greater will be the allocation on higher education.

Apart from gender, caste and household income, there are two other variables namely, type of course pursued (general higher education, technical/professional higher education or vocational education) and the type of institution (i.e., whether the student is enrolled in government institution or in private institution) influence the amount of household expenditure on higher education. It is quite obvious that the private institutions would charge much higher than government funded institutions. Thus, households are compelled to invest more on their child's higher education when enrolled in private-unaided institutions. Further, technical/professional courses are more costly requiring greater household investment. The regression estimates confirm that students pursuing technical/professional and vocational education costs the household 105.9 per cent and 78 per cent more, respectively, compared to students enrolled in general education.

### 3.1 Differences between Rural and Urban India

This sub-section focuses on the determinants of household expenditure in higher education separately for rural and urban areas. Table 2 shows that rural households spend 14 per cent less on female higher education compared to male. However, the same does not hold true in case of urban females.

**Table 1: Determinants of Household Expenditure on Higher Education by Locations**

	All India		Rural		Urban	
			Coeff (β)	t ratio	Coeff (β)	t ratio
(Constant)	4.334***	16.64	4.50***	14.23	4.04	10.73
Sex (Reference=male)						
sex_female	-0.095***	-3.56	-0.14***	-3.54	-0.05	-1.30
Caste (Reference=others)						
ST	-0.063***	-0.91	-0.04***	-0.40	-0.07	-0.64
SC	-0.156***	-3.58	-0.09**	-1.55	-0.22***	-3.32
OBC	-0.087***	-2.84	-0.04***	-0.83	-0.12***	-2.84
Type of Higher Education (Reference=general higher education)						
he_tech	1.059***	23.00	1.01***	10.94	1.07***	20.82
he_voc	0.780***	5.20	0.72***	3.95	0.88***	3.78
Type of Higher Education Institution (Reference=Government Institution)						
insti_pvtaided	0.203***	6.54	0.14***	3.09	0.27***	6.37
insti_pvtunaided	0.460***	12.32	0.38***	6.47	0.52***	11.11
Parental Education (Reference= Post-secondary Parent)						
illiterate_parent	-0.024**	-0.72	-0.03***	-0.66	-0.03***	-0.48
sec_parent	-0.033***	-1.21	-0.06***	-1.23	-0.02***	-0.59
ln_MPCE	0.547***	16.92	0.54***	12.43	0.57***	11.79
Location_rural	.0183	0.45	-	-	-	-
HH Size	0.007	0.97	-0.003	-22.28	0.02	1.57
land holding	-0.001	-0.17	0.003	0.34	-0.007	-0.62
Observations	4497		1567		2921	
Adjusted R2	0.553		0.495		0.551	
F Value	1116447		46.37		184.52	
Notation for significance level: *** significant at 1 per cent level, ** significant at 5 per cent level, * significant at 10 per cent level						

The beta coefficients for different caste groups reveal that both in rural and urban areas SC households spend the least compared to other social categories. In urban areas SC households incur 22 per cent less expenditure on higher education in comparison with others/general category households, followed by OBCs. In rural areas the variation in expenditure is narrow – SC households spend 9 per cent lesser while, OBCs and STs allocate 4 per cent lower than that of others/general category households. Thus, the inter-caste difference in household expenditure on higher education is not that much prominent in rural areas as compared to urban counterparts. This is mainly due to the reason that higher education enrolment in rural area is very low due to various constraints (foremost among them being economic along with lack of institutional facilities). Therefore, those successfully overcoming these constraints and participating in higher education generally belong to economically well-off households, irrespective of their caste. However, in urban area the scenario is quite different. The social aspiration, information, accessibility of higher education institutes and job avenues after completing higher education is completely different in urban areas with compared to rural counterparts. Thus, irrespective of their caste, the urban people generally choose to pursue higher education after completing higher secondary. Nonetheless, it is evident that caste and income hierarchy is strongly correlated in urban India, but less so for rural India (Desai and Dubey, 2011). Therefore, in case of urban households once the students are enrolled in higher education household spend according to their financial capabilities – thereby revealing differential expenditure incurred by different caste-group households on their children's higher education.

Like all India level analysis, the location wise estimates also find parental education as a significant variable in influencing the household expenditure on higher education and this holds true for both rural as well as urban areas. Similarly, the types of educational institutes also play pivotal role in deciding the amount of household expenditure on higher education. Evidently, if a student is enrolled in private institute that would compel the household to allocate more on higher education compared to those who are attending government educational institutes.

Interestingly, size of the household and landholding do not have any statistically significant impact on educational expenditure incurred by rural and urban households.

### 3.2 Results by Gender

It is evident from the regression estimates that females, at all India level and in rural areas are at a disadvantageous position in cornering household allocation on higher education compared to males. In this sub-section it is aimed at understanding how the socio-economic and household level variables impact household expenditure on higher education across males and females.

**Table 2: Determinants of Household Expenditure on Higher Education by Gender**

	Male		Female	
	Coeff (β)	t ratio	Coeff (β)	t ratio
(Constant)	4.91***	13.09	3.54***	9.67
Caste (Reference=others)				
ST	-0.28*	-3.04	0.22**	2.45
SC	-0.25*	-4.36	-0.03*	-0.52
OBC	-0.15*	-3.80	-0.01*	-0.17
Type of Higher Education (Reference=general)				
he_tech	1.09***	17.11	1.02***	16.68
he_voc	0.78***	2.94	0.75***	4.47
Type of Higher Education Institution (Reference=Government Institution)				
insti_pvtaided	0.23***	5.68	0.18***	4.00
insti_pvtunaided	0.48***	9.09	0.46***	8.87
Parental Education (Reference= Post-secondary Parent)				
illiterate_parent	0.01	-0.16	-0.07*	-1.06
sec_parent	-0.05	-1.47	-0.01*	-0.15
ln_MPCE	0.48***	10.25	0.62***	14.37
land holding	0.19	0.30	0.28	-0.79
HH Size	0.01	0.53	0.01	1.00
Observations	2458		2039	
Adjusted R2	0.563		0.548	
F Value	155.16		129.14	

Notation for significance level: \*\*\* significant at 1 per cent level, \*\* significant at 5 per cent level, \* significant at 10 per cent level

The regression results confirm that households' economic condition is one of the most significant determinants of household expenditure in higher education. This result holds true for both males and females; however, for females the impact of this variable is higher than that of the males.

The beta coefficients by different caste-groups show that the household spending on higher education is lower for SC/ST/OBC students than others. While the result holds true for both males and females; the caste identity plays more critical

role in case of males than that of the females. Evidently, ST household spends 28 per cent lesser than general category household, followed by SCs (25 per cent lower) and OBCs (15 per cent lower) for male. In case of females, households from SC category spend 3 per cent lower and OBC category spend 1 per cent lower compared to general category, on higher education. However, the beta coefficient of ST females is positive and statistically significant. It shows that ST households spend 22 per cent higher for their girls' higher education than general/other households. This may be due to the reason that amongst the enrolled students in higher education, around 11 per cent ST female students are getting full or partial fee waiver, while the same for general category females are only 3 per cent. Further, around 37 per cent ST female students are drawing fellowship vis-à-vis 1.5 per cent general female students. (Out of total enrolled students in higher education only 1.3 per cent females belong to ST category, while the same for general category students is more than 22 per cent.) This may have encouraged the ST households to invest more on higher education. Moreover, the data also shows that more than 58 per cent of ST females who are already enrolled in higher education belong to the richest quintile i.e. they are from economically creamy layer of the society who can afford to bear the direct as well as opportunity cost of pursuing higher education. Further, awareness about reservation policy at higher education institutes and job market might be contributing factors. These factors probably explain positive significant regression coefficient associated with female ST students. The estimates further reveal that parental education has significant role in deciding the amount of household spending in higher education for females. Lower the educational qualification of the parents, lesser will be spent on females' higher education. Interestingly, this variable does not have any (statistically) significant impact on the amount of household expenditure incurred on males' higher education. Similarly, household size and landholding also do play any statistically significant role in determining the household expenditure on higher education of males and females. However, as mentioned earlier, the type of higher education and type of educational institute again play critical role in influencing the amount of household expenditure on higher education of both male and female student in India.

#### 4. CONCLUSIONS

The present article examined the role of economic and social variables influencing household expenditure on higher education in India. The analysis is based on 64th round unit level data of NSS. The empirical results of OLS regressions reveal that gender and caste identity of an individual along with type of higher education and type of educational institutes play crucial role in determining the household expenditure on higher education controlling for the parental education, household economic condition, land holding and size of the household. The result from empirical investigation could be summarized as follows;

- (i) At all India level households spend 9.5 per cent less on the higher education of females compared to males. Similar result holds true for rural areas where females get around 14 per cent lower allocation than males. However, in urban areas the role of gender is (statistically) insignificant.
- (ii) Caste identity of an individual plays significant role in determining the amount of household expenditure in higher education – which is true across gender and location. The regression results confirm that households belonging to backward caste groups spend less for higher education compared to the general category.
- (iii) Household's economic condition emerges as a critical determining factor of educational expenditure. Further, its role is more prominent in case of females.
- (iv) Finally, the type of higher education (general, technical/professional and vocational) along with the type of educational institution (government, private aided and private unaided) remain crucial determinants of household expenditure on higher education in India. Technical/professional courses pursued in private unaided institutes compel households to spend heavily towards higher education.

Thus, it could be concluded that the kind of economic burden households need to shoulder for supporting students pursuing professional/technical education and/or studying in private institutions – tend to hamper the participation from socially and economically disadvantaged population. Hence, to ensure equitable participation in higher education from all sections of society, expenditure needs to be equitable for which government expenditure can definitely play a pivotal role by subsidizing the cost of higher education.

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